SECTION 08 80 00
GLAZING

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies glass, glass medallions, related glazing materials and accessories. Glazing products specified apply to factory or field glazed items.

1.2 RELATED WORK

A. Factory glazed by manufacturer in following units:
   1. Section 08 11 13, HOLLOW METAL DOORS AND FRAMES, and Section 08 14 00, WOOD DOORS.
   2. Section 08 51 13, ALUMINUM WINDOWS.
   3. Section 09 06 00, SCHEDULE FOR FINISHES.
   4. Mirrors: Section 10 28 00, TOILET, BATH, AND LAUNDRY ACCESSORIES.

1.3 LABELS

A. Temporary labels:
   1. Provide temporary label on each light of glass identifying manufacturer or brand and glass type, quality and nominal thickness.
   2. Temporary labels shall remain intact until glass is approved by Resident Engineer.
B. Permanent labels:
   1. Locate in corner for each pane.
   2. Label in accordance with ANSI Z97.1 and SGCC (Safety Glass Certification Council) label requirements.
      a. Tempered glass.

1.4 PERFORMANCE REQUIREMENTS

A. Building Enclosure Vapor Retarder and Air Barrier:
   1. Utilize the inner pane of multiple pane sealed units for the continuity of the air barrier and vapor retarder seal.
   2. Maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.
B. Glass Thickness:
   1. Select thickness of exterior glass to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7 and applicable code.
   2. Test in accordance with ASTM E 1300.
   3. Thicknesses listed are minimum. Coordinate thicknesses with framing system manufacturers.

1.5 SUBMITTALS

A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
B. Manufacturer's Certificates:
   2. Certificate on shading coefficient.
   3. Certificate on "U" value when value is specified.
C. Warranty: Submit written guaranty, conforming to General Condition requirements, and to “Warranty of Construction” Article in this Section.
D. Manufacturer's Literature and Data:
   1. Glass, each kind required.
   2. Insulating glass units.
   4. Elastic compound for metal sash glazing.
   5. Putty, for wood sash glazing.
   6. Glazing cushion.

7. Sealing compound.

E. Samples:
1. Size 300 mm x 300 mm (12 inches by 12 inches).
2. Medallions: Include glass with image.

F. Preconstruction Adhesion and Compatibility Test Report: Submit glazing sealant manufacturer's test report indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.

G. LEED Submittals:
1. Product Data for Credit IEQ 4.1: For glazing sealants used inside the weatherproofing system, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit IEQ 4: For glazing sealants used inside the weatherproofing system, documentation indicating that they comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

1.6 DELIVERY, STORAGE AND HANDLING

A. Delivery: Schedule delivery to coincide with glazing schedules so minimum handling of crates is required. Do not open crates except as required for inspection for shipping damage.

B. Storage: Store cases according to printed instructions on case, in areas least subject to traffic or falling objects. Keep storage area clean and dry.

C. Handling: Unpack cases following printed instructions on case. Stack individual windows on edge leaned slightly against upright supports with separators between each.

1.7 PROJECT CONDITIONS

Field Measurements: Field measure openings before ordering tempered glass products. Be responsible for proper fit of field measured products.

1.8 WARRANTY

A. Warranty: Conform to terms of "Warranty of Construction", FAR clause 52.246-21, except extend warranty period for the following:
1. Insulating glass units to remain sealed for 10 years.

1.9 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.

B. American National Standards Institute (ANSI):

Z97.1-04	Safety Glazing Material Used in Building - Safety Performance Specifications and Methods of Test.

C. American Society for Testing and Materials (ASTM):

C1363-05	Thermal Performance of Building Assemblies, by Means of A Hot Box Apparatus
C542-05	Lock-Strip Gaskets.
C716-06	Installing Lock-Strip Gaskets and Infill Glazing Materials.
C794-06	Adhesion-in-Peel of Elastomeric Joint Sealants.
C864-05	Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
C920-08	Elastomeric Joint Sealants.

C964-07.....Standard Guide for Lock-Strip Gasket Glazing.
C1036-06.....Flat Glass.
C1048-04.....Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
C1172-09.....Laminated Architectural Flat Glass.
C1376-10.....Pyrolytic and Vacuum Deposition Coatings on Flat Glass.
D635-06.....Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastic in a Horizontal Position.
D4802-02.....Poly (Methyl Methacrylate) Acrylic Plastic Sheet.
E84-09.....Surface Burning Characteristics of Building Materials.
E1300-09.....Determining Load Resistance of Glass in Buildings.
E2190-08.....Insulating Glass Unit

D. Code of Federal Regulations (CFR):
16 CFR 1201 - Safety Standard for Architectural Glazing Materials; 1977, with 1984 Revision.
E. National Fire Protection Association (NFPA):
80-08.....Fire Doors and Windows.
F. National Fenestration Rating Council (NFRC)
G. Safety Glazing Certification Council (SGCC)2009:
Certified Products Directory (Issued Semi-Annually).
H. Underwriters Laboratories, Inc. (UL):
752-06.....Bullet-Resisting Equipment.
I. Unified Facilities Criteria (UFC):
4-010-01-2007.....DOD Minimum Antiterrorism Standards for Buildings
J. Glass Association of North America (GANA):
Glazing Manual (Latest Edition)
Sealant Manual (2008)
K. American Society of Civil Engineers (ASCE):
ASCE 7-10.....Wind Load Provisions

PART 2 - PRODUCT

2.1 GLASS

A. Use thickness stated unless specified otherwise in assemblies.
B. Clear Glass:
1. ASTM C1036, Type I, Class 1, Quality q3.
2. Thickness, 6 mm (1/4 inch) as indicated.

2.2 HEAT-TREATED GLASS

A. Clear Heat Strengthened Glass:
B. Clear Tempered Glass:
1. ASTM C1048, Kind FT, Condition A, Type I, Class 1, Quality q3.
2. Thickness, 6 mm (1/4 inch), 12 mm (1/2 inch) and 19 mm (3/4 inch) as indicated.

2.3 VISION GLASS 1 (VG-1) AND VISION GLASS 2 (VG-2): SOLAR CONTROL INSULATING LAMINATED COATED GLASS -- LAMINATED INBOARD

A. Double-Glazed Sputter-Coated Insulating Glass Units with Laminated Inboard Lite:
1. Conformance: ASTM E 2190, Class CBA.

2. Conformance: ASTM C 1172 and complying with testing requirements in CPSC 16CFR-1201 for Category II materials and with "Windborne-Debris-Impact Resistance" Paragraph in "Quality Assurance" Article.
3. Outboard Lite: Sputter-coated clear float glass.
   a. Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
   b. Vacuum Deposition Sputtered Coating: ASTM C 1376.
   c. Coating on Surface No. 2: SunGuard SuperNeutral 54 on Clear.
   d. Glass Thickness: 6 mm (1/4 inch).
   e. Heat Treatment: Heat-strengthened, ASTM C 1048, Kind HS.
4. Air Space: 12 mm (1/2 inch) wide, hermetically sealed, dehydrated air space.
5. Inboard Laminated Glass Unit:
   a. Conformance: ASTM C 1172, CPSC 16CFR-1201
   b. Inner Lite:
      1) Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      2) Glass Thickness: 3 mm (1/8 inch)
      3) Heat Treatment: None.
   c. Interlayer: Polyvinyl butyral (PVB) plastic interlayer, clear, 0.060 inch thick.
   d. Inboard Lite
      1) Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      2) Glass Thickness: 3 mm (1/8 inch).
      3) Heat-Treatment: None.
6. Glass Unit Performance Characteristics:
   a. Visible Light Transmittance: 53 percent
   b. Visible Light Reflectance Outdoors: 13 percent
   c. Winter U-Value Nighttime: .29
   d. Summer U-Value Daytime: .27
   e. Shading Coefficient: .32
   f. Solar Heat Gain Coefficient: .28
   g. Summer Relative Heat Gain: 68
   h. Color Rendering Index (CRI): 94
7. Assemble units using glass types specified.
8. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
9. Spacer: Manufacturer's standard spacer material and construction.
10. Desiccant: Molecular sieve or silica gel, or blend of both.
11. Glass shall be annealed, heat strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.
12. Glass heat-treated by horizontal (roller hearth) process with inherent roller wave distortion parallel to the bottom edge of the glass as installed when specified.

2.4 VISION GLASS 3 (VG-3): SOLAR CONTROL INSULATING LAMINATED COATED GLASS -- LAMINATED INBOARD (TEMPERED)

A. Double-Glazed Sputter-Coated Insulating Glass Units with Laminated Inboard Lite:
   1. Conformance: ASTM E 2190, Class CBA.
   2. Conformance: ASTM C 1172 and complying with testing requirements in CPSC 16CFR-1201 for Category II materials and with "Windborne-Debris-Impact Resistance" Paragraph in "Quality Assurance" Article.
   3. Outboard Lite: Sputter-coated clear float glass.

a. Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
b. Vacuum Deposition Sputtered Coating: ASTM C 1376.
c. Coating on Surface No. 2: SunGuard SuperNeutral 54 on Clear.
d. Glass Thickness: 6 mm (1/4 inch).
e. Heat Treatment: Heat-strengthened, ASTM C 1048, Kind HS.

4. Air Space: 12 mm (1/2 inch) wide, hermetically sealed, dehydrated air space.
5. Inboard Laminated Glass Unit:
   a. Conformance: ASTM C 1172, CPSC 16CFR-1201
   b. Inner Lite:
      1) Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      2) Glass Thickness: 3 mm (1/8 inch)
      3) Heat Treatment: None.
   c. Interlayer: Polyvinyl butyral (PVB) plastic interlayer, clear, 0.060 inch thick.
   d. Inboard Lite
      1) Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      2) Glass Thickness: 3 mm (1/8 inch).
      3) Heat-Treatment: None.
6. Glass Unit Performance Characteristics:
   a. Visible Light Transmittance: 53 percent
   b. Visible Light Reflectance Outdoors: 13 percent
   c. Winter U-Value Nighttime: .29
   d. Summer U-Value Daytime: .27
   e. Shading Coefficient: .32
   f. Solar Heat Gain Coefficient: .28
   g. Summer Relative Heat Gain: 68
   h. Color Rendering Index (CRI): 94
7. Assemble units using glass types specified.
8. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
9. Spacer: Manufacturer's standard spacer material and construction.
10. Desiccant: Molecular sieve or silica gel, or blend of both.
11. Glass shall be annealed, heat strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.
12. Glass heat-treated by horizontal (roller hearth) process with inherent roller wave distortion parallel to the bottom edge of the glass as installed when specified.

2.5 SPANDREL GLASS 1 (SG-1): SOLAR CONTROL INSULATING COATED GLASS -- WITH SPANDREL

A. Double-Glazed Sputter-Coated Insulating Glass Units with Laminated Inboard Lite and Spandrel:
   1. Conformance: ASTM E 2190, Class CBA.
   2. Conformance: ASTM C 1172 and complying with testing requirements in CPSC 16CFR-1201 for Category II materials and with "Windborne-Debris-Impact Resistance" Paragraph in "Quality Assurance" Article.
   3. Outboard Lite: Sputter-coated clear float glass.
      a. Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      b. Vacuum Deposition Sputtered Coating: ASTM C 1376.
      c. Coating on Surface No. 2: SunGuard SuperNeutral 54 on Clear.

d. Glass Thickness: 6 mm (1/4 inch).
e. Heat Treatment: Heat-strengthened, ASTM C 1048, Kind HS.

4. Air Space: 12 mm (1/2 inch) wide, hermetically sealed, dehydrated air space.
5. Inboard Laminated Glass Unit:
   a. Conformance: ASTM C 1172, CPSC 16CFR-1201
   b. Inner Lite:
      1) Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      2) Glass Thickness: 3 mm (1/8 inch)
      3) Heat Treatment: None.
   c. Interlayer: Polyvinyl butyral (PVB) plastic interlayer, clear, 0.060 inch thick.
   d. Inboard Lite
      1) Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      2) Glass Thickness: 3 mm (1/8 inch).
      3) Spandrel Opacifier on Surface #6: ICD Opaci-Coat 3-0770 Warm Gray Spandrel.
      4) Heat-Treatment: Heat-strengthened, ASTM C 1048, Kind HS (Tempered if required).
6. Glass Unit Performance Characteristics:
   a. Visible Light Transmittance: N/A
   b. Visible Light Reflectance Outdoors: N/A
   c. Winter U-Value Nighttime: .29
   d. Summer U-Value Daytime: .27
   e. Shading Coefficient: N/A
   f. Solar Heat Gain Coefficient: N/A
   g. Summer Relative Heat Gain: N/A
   h. Color Rendering Index (CRI): N/A
7. Assemble units using glass types specified.
8. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
9. Spacer: Manufacturer's standard spacer material and construction.
10. Desiccant: Molecular sieve or silica gel, or blend of both.
11. Glass shall be annealed, heat strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.
12. Glass heat-treated by horizontal (roller hearth) process with inherent roller wave distortion parallel to the bottom edge of the glass as installed when specified.

2.6 TRANSLUCENT GLASS 1 (TG-1): SOLAR CONTROL INSULATING COATED GLASS -- WITH ACID ETCHED INBOARD LITE

A. Double-Glazed Sputter-Coated Insulating Glass Units with an Acid Etched Inboard Lite:
   1. Conformance: ASTM E 2190, Class CBA.
   2. Conformance: ASTM C 1172 and complying with testing requirements in CPSC 16CFR-1201 for Category II materials and with "Windborne-Debris-Impact Resistance" Paragraph in "Quality Assurance" Article.
   3. Outboard Lite: Sputter-coated clear float glass.
      a. Annealed Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
      b. Vacuum Deposition Sputtered Coating: ASTM C 1376.
      c. Coating on Surface No. 2: SunGuard SuperNeutral 54 on Clear.
      d. Glass Thickness: 6 mm (1/4 inch).

e. Heat Treatment: None.
4. Air Space: 12 mm (1/2 inch) wide, hermetically sealed, dehydrated air space.
5. Inboard Laminated Glass Unit:
a. Conformance: ASTM C 1172, CPSC 16CFR-1201
b. Inboard Lite: Guardian SunGuard Satin Deco glass.
1) Clear Float Glass: ASTM C 1036, Type 1, Class 1, Quality q3.
2) Acid-Etched Surface on Surface #3
3) Glass Thickness: 6 mm (1/4 inch).
4) Heat-Treatment: Heat-strengthened, ASTM C 1048, Kind HS(Tempered if required).
6. Glass Unit Performance Characteristics:
a. Visible Light Transmittance: 52 percent
b. Visible Light Reflectance Outdoors: 13 percent
c. Winter U-Value Nighttime: .29
d. Summer U-Value Daytime: .27
e. Shading Coefficient: .32
f. Solar Heat Gain Coefficient: .28
g. Summer Relative Heat Gain: 68
h. Color Rendering Index (CRI): 94
7. Assemble units using glass types specified.
8. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
9. Spacer: Manufacturer's standard spacer material and construction.
10. Desiccant: Molecular sieve or silica gel, or blend of both.
11. Glass shall be annealed, heat strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.
12. Glass heat-treated by horizontal (roller hearth) process with inherent roller wave distortion parallel to the bottom edge of the glass as installed when specified.

2.7 FIRE RESISTANT GLASS WITHOUT WIRE MESH

A. Fire resistant glass or glass assembly classified by UL in Building Materials Directory or other approved testing laboratory bearing permanent mark of classification.
B. Nippon Electric Glass Company, LTD Firelite Plus Premium.
1. Interior Door Glazing: 90 minute rated, 8 mm (5/16 inch) thick.
2. Interior Window Glazing: 90 min. rated, 8 mm (5/16 inch) thick.
a. Frame: Fire rated profiled steel tubing formed using cold drawn and profiled steel tubing.
3. 2 hour wall: Laminated Glass with Intumescent Interlayers. Laminated glass made from multiple plies of uncoated, clear float glass; with intumescent interlayers; complying with testing requirements in 16 CFR 1201 for Category II materials
4. Distributed by Technical Glass Products; Snoqualmie, WA 98065.

2.8 GLASS MEDALLION SIGN

A. Glass Medallion: See Section 09 06 00, SCHEDULE FOR FINISHES.
1. 36” diameter, custom clear tempered glass, low iron 3/4” thick, micro frosted and etched. Image on backside.
2. Installation System: Threaded long barrel and cap with clear anodized aluminum finish, stainless steel socket set screws, zinc plated wood mount hanger screws, screw-stud driver.

2.9 GLAZING ACCESSORIES

A. As required to supplement the accessories provided with the items to be glazed and to provide a complete installation. Ferrous metal accessories exposed in the finished work shall have a finish that will not corrode or stain while in service.

B. Setting Blocks: ASTM C864:
   1. Channel shape; having 6 mm (1/4 inch) internal depth.
   2. Shore a hardness of 80 to 90 Durometer.
   3. Block lengths: 50 mm (two inches) except 100 to 150 mm (four to six inches) for insulating glass.
   4. Block width: Approximately 1.6 mm (1/16 inch) less than the full width of the rabbet.
   5. Block thickness: Minimum 4.8 mm (3/16 inch). Thickness sized for rabbet depth as required.

C. Spacers: ASTM C864:
   1. Channel shape having a 6 mm (1/4 inch) internal depth.
   2. Flanges not less 2.4 mm (3/32 inch) thick and web 3 mm (1/8 inch) thick.
   3. Lengths: One to 25 to 76 mm (one to three inches).
   4. Shore a hardness of 40 to 50 Durometer.

D. Sealing Tapes:
   1. Semi-solid polymeric based material exhibiting pressure-sensitive adhesion and withstanding exposure to sunlight, moisture, heat, cold, and aging.
   2. Shape, size and degree of softness and strength suitable for use in glazing application to prevent water infiltration.

E. Spring Steel Spacer: Galvanized steel wire or strip designed to position glazing in channel or rabbeted sash with stops.

F. Glazing Gaskets: ASTM C864:
   1. Firm dense wedge shape for locking in sash.
   2. Soft, closed cell with locking key for sash key.
   3. Flanges may terminate above the glazing-beads or terminate flush with top of beads.

G. Lock-Strip Glazing Gaskets: ASTM C542, shape, size, and mounting as indicated.

H. Glazing Sealants: ASTM C920, silicone neutral cure:
   1. Type S.
   2. Class 25
   3. Grade NS.
   4. Shore A hardness of 25 to 30 Durometer.

I. Neoprene, EPDM, or Vinyl Glazing Gasket: ASTM C864.
   1. Channel shape; flanges may terminate above the glazing channel or flush with the top of the channel.
   2. Designed for dry glazing.

J. Color:
   1. Color of glazing compounds, gaskets, and sealants used for aluminum color frames shall match color of the finished aluminum and be nonstaining.
   2. Color of other glazing compounds, gaskets, and sealants which will be exposed in the finished work and unpainted shall be black, gray, or neutral color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Examine openings for glass and glazing units; determine they are proper size; plumb; square; and level before installation is started.
2. Verify that glazing openings conform with details, dimensions and tolerances indicated on manufacturer's approved shop drawings.

B. Advise Contractor of conditions which may adversely affect glass and glazing unit installation, prior to commencement of installation: Do not proceed with installation until unsatisfactory conditions have been corrected.
C. Verify that wash down of adjacent masonry is completed prior to erection of glass and glazing units to prevent damage to glass and glazing units by cleaning materials.

3.2 PREPARATION

A. For sealant glazing, prepare glazing surfaces in accordance with GANA-02 Sealant Manual.
B. Determine glazing unit size and edge clearances by measuring the actual unit to receive the glazing.
C. Shop fabricate and cut glass with smooth, straight edges of full size required by openings to provide GANA recommended edge clearances.
D. Verify that components used are compatible.
E. Clean and dry glazing surfaces.
F. Prime surfaces scheduled to receive sealants, as determined by preconstruction sealant-substrate testing.

3.3 INSTALLATION - GENERAL

A. Install in accordance with GANA-01 Glazing Manual and GANA-02 Sealant Manual unless specified otherwise.
B. Glaze in accordance with recommendations of glazing and framing manufacturers, and as required to meet the Performance Test Requirements specified in other applicable sections of specifications.
C. Set glazing without bending, twisting, or forcing of units.
D. Do not allow glass to rest on or contact any framing member.
E. Glaze doors and operable sash, in a securely fixed or closed and locked position, until sealant, glazing compound, or putty has thoroughly set.
F. Tempered Glass: Install with roller distortions in horizontal position unless otherwise directed.
G. Insulating Glass Units:
   1. Glaze in compliance with glass manufacturer's written instructions.
   2. When glazing gaskets are used, they shall be of sufficient size and depth to cover glass seal or metal channel frame completely.
   3. Do not use putty or glazing compounds.
   4. Do not grind, nip, cut, or otherwise alter edges and corners of fused glass units after shipping from factory.
   5. Install with tape or gunnable sealant in wood sash.
H. Fire Resistant Glass:
   1. Glaze in accordance with UL design requirements.

3.4 INSTALLATION - DRY METHOD (TAPE AND GASKET SPLINE GLAZING)

A. Cut glazing spline to length; install on glazing pane. Seal corners by butting and sealing junctions with butyl sealant.
B. Place setting blocks at 1/4 points with edge block no more than 150 mm (6 inches) from corners.
C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
D. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
F. Trim protruding tape edge.

3.5 INSTALLATION - WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

A. Cut glazing tape to length and set against permanent stops, 5 mm (3/16 inch) below sight line. Seal corners by butting tape and dabbing with butyl sealant.
B. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
C. Place setting blocks at 1/4 points with edge block no more than 150 mm (6 inches) from corners.
D. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to achieve full contact at perimeter of pane or glass unit.
E. Install removable stops, with spacer strips inserted between glazing and applied stops, 6 mm (1/4 inch) below sight line. Place glazing tape on glazing pane or unit with tape flush with sight line.
F. Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, but not more than 9 mm (3/8 inch) below sight line.
G. Apply cap bead of sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.6 INSTALLATION - WET METHOD (SEALANT AND SEALANT)

A. Place setting blocks at 1/4 points and install glazing pane or unit.
B. Install removable stops with glazing centered in space by inserting spacer shims both sides at 600 mm (24 inch) intervals, 6 mm (1/4 inch) below sight line.
C. Fill gaps between glazing and stops with sealant to depth of bite on glazing, but not more than 9 mm (3/8 inch) below sight line to ensure full contact with glazing and continue the air and vapor seal.
D. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.7 INSTALLATION - INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

A. Cut glazing tape to length and install against permanent stops, projecting 1.6 mm (1/16 inch) above sight line.
B. Place setting blocks at 1/4 points with edge block no more than 150 mm (6 inches) from corners.
C. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
D. Install removable stops, spacer shims inserted between glazing and applied stops at 600 mm (24 inch) intervals, 6 mm (1/4 inch) below sight line.
E. Fill gaps between pane and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.
F. Trim protruding tape edge.

3.8 INSTALLATION - INTERIOR WET METHOD (COMPOUND AND COMPOUND)

A. Install glazing resting on setting blocks. Install applied stop and center pane by use of spacer shims at 600 mm (24 inch) centers, kept 6 mm (1/4 inch) below sight line.
B. Locate and secure glazing pane using spring wire clips.
C. Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

3.9 REPLACEMENT AND CLEANING

A. Clean new glass surfaces removing temporary labels, paint spots, and defacement after approval by Resident Engineer.
B. Replace cracked, broken, and imperfect glass, or glass which has been installed improperly.
C. Leave glass, putty, and other setting material in clean, whole, and acceptable condition.

3.10 PROTECTION

Protect finished surfaces from damage during erection, and after completion of work. Strippable plastic coatings on colored anodized finish are not acceptable.

3.11 GLAZING SCHEDULE

A. Fire Resistant Glass:
   1. Use Fire Resistant Glass without wire mesh in interior fire rated or labeled doors and windows
B. Tempered Glass:
   1. Install in full and half glazed doors unless indicated otherwise.
   2. Install in storefront, windows, and door sidelights adjacent to doors.
   3. Use clear tempered glass on interior side lights and doors, and on exterior doors and sidelights unless otherwise indicated or specified.
   4. Use SEU clear tempered insulating glass on storefronts and sidelights.
   5. Use clear tempered glass in exterior and interior panes unless specified otherwise at insulating glass units adjacent to door.
C. Clear Glass:
   1. Interior observation windows not specified otherwise.
   2. Interior pane of dual glazed windows not receiving tempered, laminated or organic coated glass, or other special glass indicated or specified.
D. Tinted Glass: Exterior pane of dual glazed windows not receiving tinted tempered glass.
E. Insulating Glass:
   1. Install SEU clear tempered glass in windows, interior pane of dual glazed windows, storefronts, adjacent to entrances or walks.
   2. Install SEU tinted tempered and clear tempered glass in storefronts, adjacent to entrances or walks.
F. Interior Glazing Types: **S**ee Section 09 06 00 Schedule For Finishes and Door schedule.
   1. GL-1 1/4” Clear Glass, Tempered
   2. GL-2 Not Used
   3. GL-3 1/4” Clear 90 Min. Fire Rated Glass at Rated Vision Panel
   4. GL-4 1/2” Clear Tempered Glass Full Height
   5. GL-5 120 Min Fire Rated Glass
   6. GL-6 3/4” Laminated & Tempered Clear Vision Glass
   7. GL-7 Not Used
   8. GL-8 Custom Glass Medallion
   9. GL-9 3/4” Clear, Heat Strengthened, Tempered and Laminated Structural Glazing per drawings
G. Exterior Glazing Types: **S**ee Section 09 06 00 Schedule For Finishes and Door schedule.
   1. VG-1 Vision Glass -1" Insulated
   2. VG-2 Vision Glass -1" Insulated Clear

3. VG-3 Vision Glass -1" Insulated Clear Tempered
4. VG-4 Vision Glass - 3/4" Laminated & Tempered
5. VG-5 Vision Glass - 3/4" Laminated & Tempered
6. SG-1 Spandrel Glass -1" Insulated
7. TG-1 Translucent Glass -1" Insulated

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